

ENGINEERING TECHNIQUES

FOR DIGITAL COMPUTERS

This course of lectures is intended for electrical and other engineers interested in the design and structure of equipment using computing techniques. Those who enrol are expected to have some general knowledge of electronics and circuits; methods which have been especially developed for computers are described from first principles.

In the past the lectures have been given by representatives of companies who are actively engaged in the construction and design of computing equipment. The course consists of twenty lectures, and Professor R. W. McKay of the Department of Physics will intersperse lectures to make the course connected and comprehensive.

In the past, members of the following companies and organizations have participated as speakers:

Computation Centre, University of Toronto
Burroughs Adding Machines of Canada Limited,
Electrodata Division
Department of Electrical Engineering, University
of Toronto
Ferranti Electric Company
International Business Machines Company Limited
Remington Rand Limited.

COURSE DIRECTOR:

Professor R. W. McKay, M.A., Ph.D.
Department of Physics

TIME: Thursdays, 7:30 p.m.

October 9th to December 11th
January 8th to March 12th

PLACE: McLennan Laboratory, Room 108.

FEE: \$35.00

PROGRAMME

ENGINEERING TECHNIQUES

FOR DIGITAL COMPUTERS

The following topics will be discussed:

Binary Arithmetic

Logical Elements

Switching Algebra

Circuit Techniques for Realization of
Logical Elements

Arithmetic Units

Storage Media

Magnetic Drum and Tapes

Input Output Devices

Machine Organization

Maintenance Techniques and Machine
Reliability

Analog Digital Conversion Devices

Application to Sample Data Control
Systems

Recent Developments



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UNIVERSITY OF TORONTO
UNIVERSITY EXTENSION
in co-operation with the
COMPUTATION CENTRE

COURSES
IN

HIGH SPEED COMPUTERS
and
DATA PROCESSING

Session 1958-59

Courses on

HIGH SPEED COMPUTERS

and

DATA PROCESSING

This year two courses on electronic digital computers and high speed data processing are being offered by the Department of University Extension in co-operation with the Computation Centre. Since these courses were first offered, they have had wide acceptance. The course content has been both interesting and valuable to those already working with electronic computers or to those wishing to learn about them.

A third course, "Programming for Digital Computers" which has been included in the programme in previous years, will not be given in the 1958-59 session. It will be included in the courses given in 1959-60.

University Extension appreciates the invaluable guidance and co-operation of the Computation Centre—the Director, and Head, Department of Physics, Dr. W. H. Watson—the Chief Computer, Dr. C. C. Gotlieb, who has arranged the programme and will direct it—and the Staff of the Centre and other University Departments who will assist in the direction of the programme and the lecturing.

REGISTRATION:

By mail or in person at Room 207, 65 St. George Street, 9 a.m. to 5 p.m. daily, except Saturdays. Application forms and course literature may be obtained by writing the Director, University Extension, 65 St. George Street, or by telephoning WA. 3-6611, Locals 301, 304, 528, 527.

In order to accommodate students and enable them to enrol during the evening, registration will be taken—

Tuesday	September 16th
Thursday	September 18th
Monday	September 22nd
Wednesday	September 24th
Wednesday	October 1st

in the evenings from 7:30 to 9:00, in the Wallberg Building, corner St. George and College Streets.

HIGH SPEED DATA PROCESSING

This introduction to modern high speed data processing systems provides a general background on the uses of stored programme electronic data processors in business problems. It is divided into three approximately equal sections: data processing systems, coding and programming, and applications. The section on systems is a study of the components and principles of electronic data processors. That on coding and programming introduces terminology and new ideas through a few simple problems. The last section is about the application of these new methods to insurance, inventory control, accounting, production scheduling, etc. Throughout, a special effort is made to concentrate on methods which are generally valid on modern machines and widely applicable. The course terminates with a symposium, in which representatives of manufacturing and other organizations active in this field in Canada are invited to participate.

Applicants need not have specialized knowledge of mathematics nor any knowledge of electronics. They should, however, have some interest and experience in a field where the handling of numerical data is important, such as accounting, banking, business management, investment financing or insurance.

LECTURERS:

Professor C. C. Gotlieb, M.A., Ph.D.
Chief Computer, Computation Centre.
Professor J. N. P. Hume, M.A., Ph.D.
Department of Physics.

TIME: Thursdays, 7:30 p.m.
October 9th to December 11th
January 8th to March 12th

PLACE: McLennan Laboratory, Room 132.

FEE: \$35.00

Programme

HIGH SPEED DATA PROCESSING

Data Processing Systems:	Number of Lectures:
Requirements of a Data Processing System	
Representation of Information	
Arithmetic Unit	
Store	7
Control	
Input Output Devices	
Instruction Code	

Coding and Programming:

Analysing, Programming and Coding	
Coding Examples	
Comparative Study of Machine Techniques	
Reliability and Checking	7
File Processing	
Sorting	
Automatic Programming	

Applications in some of the following areas will be studied:

Inventory Maintenance	
Insurance	
Production Control and Scheduling	
Transportation Assignment	5
Warehouse Operation	
Banking	
Utility Accounting	

Symposium